Pulsed NMR experiments

Useful data for Cu^{2+} & Fe^{3+}, glycerin and epoxy experiments.

Table from Kittel's *Introduction to Solid State Physics*, 5th Edition.

Iron Group Ions

Table 2 shows that the experimental magneton numbers for salts of the iron transition group of the periodic table are in poor agreement with (18). The values often agree quite well with magneton numbers $p = 2[S(S+1)]^{\frac{1}{2}}$ calculated as if the orbital moment were not there at all. We say that the orbital moments are **quenched.**

TABLE 2 Effective Magneton Numbers for Iron Group Ions

Ion	Configuration	Basic Level	p(calc) = $g[J(J+1)]^{\frac{1}{2}}$	p(calc) = $2[S(S+1)]^{\frac{1}{2}}$	p(exp)[a]
Ti^{3+}, V^{4+}	$3d^1$	$^2D_{3/2}$	1.55	1.73	1.8
V^{3+}	$3d^2$	$^3F_2$	1.63	2.83	2.8
Cr^{3+}, V^{2+}	$3d^3$	$^4F_{3/2}$	0.77	3.87	3.8
Mn^{3+}, Cr^{2+}	$3d^4$	$^5D_0$	0	4.90	4.9
Fe^{3+}, Mn^{2+}	$3d^5$	$^6S_{5/2}$	5.92	5.92	5.9
Fe^{2+}	$3d^6$	$^5D_4$	6.70	4.90	5.4
Co^{2+}	$3d^7$	$^4F_{9/2}$	6.63	3.87	4.8
Ni^{2+}	$3d^8$	$^3F_4$	5.59	2.83	3.2
Cu^{2+}	$3d^9$	$^2D_{5/2}$	3.55	1.73	1.9

[a]Representative values.